

Amendments to the Claims

1. (Currently Amended) An isolated and purified polypeptide having desaturase activity, which comprises:
 - a) ~~the amino acid sequence shown in SEQ ID NO:2;~~
 - b) ~~one or more amino acid deletions, insertions or substitutions relative to a polypeptide comprising the amino acid sequence as shown in SEQ ID NO:2 as defined in a) above,~~ but has at least ~~50%~~ 90% amino acid sequence identity therewith; ~~or~~
 - c) ~~a fragment of a polypeptide as defined in a) or b) above, which is at least 150 amino acids long.~~
2. (Original) A polypeptide according to claim 1, which has a cytochrome domain.
3. (Original) A polypeptide according to claim 2, which has a cytochrome b₅ domain.
4. (Previously Presented) A polypeptide according to claim 1, which has at least one histidine box.
5. (Previously Presented) A polypeptide according to claim 1, which has three histidine boxes.
6. (Previously Presented) A polypeptide according to claim 1, which is a front end desaturase.
7. (Previously Presented) A polypeptide according to claim 1, which is a Δ^6 desaturase.
- 8-11. (Canceled)
12. (Previously Presented) A polypeptide according to claim 1, which occurs naturally in *C. elegans*.
13. (Currently Amended) ~~A~~ An isolated and purified polypeptide ~~according to claim 1, which consists~~ consisting of the amino acid sequence shown in SEQ ID NO:2 or a part thereof.
14. (Currently Amended) A polypeptide according to claim 1, which is covalently linked to a

moiety capable of being isolated by affinity chromatography.

23. (Canceled)

39. (Previously Presented) An isolated and purified Δ^6 desaturase polypeptide comprising the amino acid sequence as shown in SEQ ID NO:2 with no more than five conservative amino acid substitutions, wherein the polypeptide has desaturase activity.

40. (Previously Presented) The polypeptide of claim 39 which has one conservative amino acid substitution.

41. (Previously Presented) The polypeptide of claim 39 which comprises the amino acid sequence as shown in SEQ ID NO:2.

42. (Currently Amended) The polypeptide of claim 41 which is covalently linked to a moiety capable of being isolated by affinity chromatography.

43. (Previously Presented) The polypeptide of claim 41 further comprising a signal sequence.

44. (New) The polypeptide of claim 1 which has at least 95% amino acid sequence identity with the amino acid sequence of SEQ ID NO:2.

45. (New) The polypeptide of claim 1 which has at least 99% amino acid sequence identity with the amino acid sequence of SEQ ID NO:2.

46. (New) An isolated and purified polypeptide having desaturase activity which comprises a part of the amino acid sequence as shown in SEQ ID NO:2.